

**REMARKS**

The foregoing amendment amends claim 1. Pending in the application are claims 1- 7, of which claim 1 is independent. Claim 8 has been withdrawn from further consideration. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

**Claim Amendments**

Applicant amends claim 1 to clarify the scope of the claimed invention. In particular, claim 1 is amended to recite a gain-coupled laser having an active region to which a grating is applied such that the gain-coupling defined by  $\text{Im}(kL)$  is at least 0.06. Support for the claim amendments can be found on page 3, lines 28-29, page 11, lines 24-29 and page 12, lines 1-5 of the Specification. No new matter is added.

**Election/Restrictions**

In response to the Examiner's restriction requirement, Applicant elects Group I (claims 1-7). Applicant elects Group I to expedite the prosecution of the pending application and reserves the right to pursue unelected claims in the pending or separate applications.

**Claim Rejections Under 35 U.S.C. §112**

Claims 1-7 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In response to the rejection, Applicant amends claim 1 to delete the limitations pointed out as being indefinite by the Examiner in the Office Action. In light of the foregoing claim amendments, applicant respectfully requests the Examiner to withdraw the rejections of claims 1-7 under 35 U.S.C. §112, second paragraph.

**Claim Rejections Under 35 U.S.C. §102**

Claims 1-7 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No.2003/0091081 ("Sahara"). Applicant respectfully traverses the rejection for the following reasons.

Claim 1 recites a directly modulated, distributed feedback *gain-coupled* laser having an output beam responsive to the application of an input biasing current. The laser includes an active region to which *a grating is applied such that the gain-coupling defined by  $\text{Im}(kL)$  is at least 0.06.*

Sahara discloses a distributed feedback laser for isolation-free operation.

Applicant submits that the cited prior art reference fails to disclose each and every element of claim 1. Applicant submits that Sahara fails to disclose *a gain-coupled laser having an active region to which a grating is applied such that gain-coupling defined by  $\text{Im}(kL)$  is at least 0.06.* Sahara discloses a distributed feedback (DFB) laser. There are generally two types of DFB lasers, including index-coupled lasers and gain-coupled lasers. In the index-coupled lasers, a grating is applied to the outer layers surrounding the active region. In the gain-coupled lasers, the grating is applied to the active region itself. (See, page 3, lines 11-29 of the Specification).

The Sahara reference discloses a complex-coupled laser that includes an active layer and a current-induced grating having a coupling strength product  $kL$  is greater than 3 (See, paragraph [0005] of Sahara). Applicant submits that the complex-coupled laser disclosed in the Sahara reference is an index-coupled laser, not a gain-coupled laser. The Sahara reference clearly describes that the grating structure is located just above the active layer (18). (See, paragraph [0038] of Sahara). Sahara specifically contrasts the complex-coupled laser with the gain-coupled laser on page 3, paragraph [0042]. Therefore, it is apparent that the complex-coupled laser device disclosed in the Sahara reference is the index-coupled laser, not the gain-coupled laser of the claimed invention. Sahara is concerned only with index-coupled lasers. Sahara is entirely silent as to any value of gain-coupling for the laser.


In light of the foregoing claim amendments and arguments, Applicant respectfully submits that Sahara fails to disclose each and every element of claim 1. Applicant therefore requests the Examiner withdraw the rejections of claims 1-7 under 35 U.S.C. §102(e), and pass the claims to allowance.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that further obstacles to allowance of these claims persist, we invite a telephone call to Applicant's representative.

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Respectfully submitted,

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